Confederated Tribes and Bands
of the Yakama Nation

Established by the
Treaty of June 9, 1855

December 18, 2019

Sheila Fleming
Acting Director, Environmental Cleanup Office
US Environmental Protection Agency Region 10
1200 Sixth Avenue
Mail Code: 12-D12-1
Seattle, WA 98101

RE: Portland Harbor Remedial Design | Transition Zone Water Cleanup Levels

Dear Ms. Fleming -

I am taking the opportunity to document the results of the discussions between Yakama Nation Fisheries and EPA Region 10 regarding cleanup levels for the transition zone water (TZW or porewater) in current plans for Remedial Design (RD) at the Portland Harbor NPL Site. This issue arose this past summer in the Technical Coordinating Team (TCT) meetings when Region 10 took the position that the Clean Water Act (CWA) human health criteria (HHC) for surface water are not relevant and appropriate requirements for the TZW under CERCLA, and that aquatic life criteria were adequate to achieve the remedial action objectives (RAOs) of the 2017 Record of Decision (ROD).

In a letter to Lori Cora dated July 26, 2019 and in an email dated September 12, 2019, Yakama Nation Fisheries pointed out that the Region 10 plan to use only ecological criteria conflicted with EPA's previous position regarding applicable, relevant and appropriate requirements (ARARs) for the Portland Harbor remedial action. We also informed EPA that this about-face was inconsistent with what we know about human consumption of benthic biota, including shellfish, from the Willamette River's pore water areas, and therefore did not comply with requirements of CERCLA regarding ARARs. We reiterated this position in a meeting with you and your staff and attorneys on September 19, and indicated that this issue, if left unresolved, could potentially expose Region 10 to charges of arbitrary decision making. However, follow-up conference calls on October 4 and 22 finally produced agreement between the Fisheries Program and EPA in favor of using the HHC for surface water as applicable standards for protecting pore water quality in the TZW at Portland Harbor.

The governing statute is clear that the inquiry made by EPA into the use of certain ARARs involves a mix of different factors, including the particular facts of the hazardous releases and affected environment. Section 121(d) of CERCLA provides:

> In determining whether or not any water quality criteria under the Clean Water Act [33 U.S.C. 1251 et seq.] is relevant and appropriate under the circumstances of the release or threatened release, the President shall consider the designated or potential use of the surface or groundwater, the environmental media affected, the purposes for which such criteria were developed, and the latest information available.

42 U.S.C. § 9621(d)(2)(A)(ii)-(B)(i). Based on these congressional directives to EPA, I will explain the particular circumstances relevant to the Portland Harbor TZW and why the State of Oregon's HHC

standards, as well as CWA Section 304(a), need to be applied as ARARs at the interval of surface and ground water.

Designated or Potential Uses

Oregon State Aquatic Life and Human Health water quality criteria both apply to the Willamette River in the vicinity of Portland Harbor. Among the designated beneficial uses for which water quality in the Willamette Basin must be attained include public domestic water supply, private domestic water supply, fish and aquatic life, and fishing. See OAR 340-041-0340, Table 340A. The Oregon Department of Environmental Quality (ODEQ) has explained the ecological/human health connection for these beneficial uses:

> Oregon's criteria were developed to protect human health from long term exposure to toxic pollutants in drinking water and through eating fish and shellfish contaminated with toxics. The "water + organism" criteria refer to values that if met, ensure exposure through the consumption of drinking water and fish, including shellfish does not result in adverse health effects. The "organism only" criteria refer to values that if met, ensure exposure through the consumption of fish and shellfish only does not result in adverse health effects. These criteria apply where Oregon has designated waters as either a public or private domestic water supply, or as a fishing beneficial use.

Human Health Criteria Final Issue Paper, Oregon DEQ (2008-2011 Toxics Rulemaking), at 11. EPA also recognizes that where CWA Section 304(a) criteria are considered relevant and appropriate, both aquatic life and human health criteria apply to waters with any aquatic life designated uses:

> EPA interprets "fishable" uses under section 101(a) of the CWA to include, at a minimum, designated uses providing for the protection of aquatic communities and human health related to consumption of fish and shellfish. In other words, EPA views "fishable" to mean that not only can fish and shellfish thrive in a waterbody, but when caught, can also be safely eaten by humans. This interpretation also satisfies the section 303(c)(2)(A) requirement that water quality standards protect public health.

EPA Guidance: Use of Fish and Shellfish Advisories and Classifications in 303(d) and 305(b) Listing Decisions, Memorandum from OST and OWOW (October 24, 2000), at 2. Together the application of both human health and aquatic life criteria to the designated uses of the Lower Willamette River for consumption of both fish and shellfish weigh heavily in favor of using these CWA standards as relevant and appropriate for the Portland Harbor TZW.

Affected Environmental Media

TZW or pore water is the interval where both groundwater and surface water comprise some percentage of the water occupying pore space in sediments. TZW is the connecting medium from groundwater to sediment and surface water. This transition (hyporheic) zone is not only an area where surface and groundwater mix, but is also an ecologically active area beneath the sediment/water interface where a variety of important ecological and physicochemical conditions and processes occur. Fish and other aquatic organisms can be exposed to contaminants in the transition zone from direct contact with contaminated water or by consuming contaminated prey (bioaccumulation). Both EPA and ODEQ have recognized that the TZW or hyporheic zone at Portland Harbor is "a region of biological productivity that serves as habitat for benthic organisms and a source of food for bottom feeding fish." See *Portland Harbor Joint Source Control Strategy* (December 2005) at C-7. Elevated contaminants of concern (COCs) in groundwater can negatively impact transition zone water quality in sediment and increase risks to benthic organisms, fish, shellfish, and aquatic plants. As of 2012 the Lower Willamette River is listed

by Oregon DEQ as a 303(d) impaired water body for several Portland Harbor contaminants of concern (COCs): PAHs, PCBs, hexachlorobenzene, dieldrin, DDT, DDE, copper, chlordane, aldrin, and arsenic. The Baseline Human Health Risk Assessment (LWG, 2016, Appendix F) concluded "Risks resulting from the consumption of fish or shellfish are generally orders of magnitude higher than risk resulting from direct contact with sediment, surface water, or seeps. Risks and hazards from fish and shellfish consumption exceed the EPA point of departure for cancer risk of 1 x 10-4 and target HI of 1 when evaluated on a harbor-wide basis, and when evaluated on the smaller spatial scale by river mile." The Portland Harbor Record of Decision (EPA, 2017, Responsiveness Summary - Section 2.3.1) concludes that the HH risk assessment found that Portland Harbor releases in surface water and groundwater pose unacceptable risk to humans from ingestion and bioaccumulation through consumption of prey. Both the conceptual site model and site-specific food web model developed to help select remedies in the FS considered transfer of COCs in the TZW to sediment-associated biota and then to their fish and wildlife predators, and hence to humans, to be an important and active process.

The HH surface water criteria should apply not only to in-river TZW, but also to porewater at beaches and seeps. Beaches provide important habitat for many organisms, including shellfish; are seasonally submerged so that the beach porewater is TZW; and even when the beach is exposed, organisms, including shellfish, are exposed to any contaminants in the porewater. Beaches are also of concern because humans harvest shellfish from the beaches. Seeps are sites of direct discharges of groundwater to surface water. Once discharged, seep water is surface water and a point of exposure to humans and biota.

Purposes of Human Health and Aquatic Life Criteria

State and federal HHC for water quality based on the consumption of organisms are intended to protect consumers of both fish and shellfish, and were developed using consumption rates for both fish and shellfish. All types of fish and shellfish are also included in the fish consumption rates recommended by the Human Health Focus Group. *Human Health Focus Group Oregon Fish and Shellfish Consumption Rate Project* (ODEQ, 2008). In 2015 EPA updated the default fish consumption rate to 22 grams per day. This rate represents the 90th percentile consumption rate of fish and shellfish from inland and nearshore waters for the U.S. adult population 21 years of age and older, based on NHANES data from 2003 to 2010. *Human Health Ambient Water Quality Criteria: 2015 Update,* EPA (June 29, 2015). However, Pacific Northwest tribes with usual and accustomed rights in the Portland Harbor area are known to have significantly higher fish and shellfish consumption rates. *A Fish Consumption Survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin, Technical Report 94-3, Portland, Oregon* (CRITFC, 1994). The presence of shellfish in the Portland Harbor TZW that are consumed by humans unquestionably makes the HHC highly relevant and applicable to the TZW as indicated above.

Latest Information Available

Indeed EPA considered impacts to Portland Harbor TZW in the 2017 ROD. The conceptual site model (CSM) identifies processes that transport site contamination throughout the environment. TZW has been found to exceed maximum contaminant levels (MCLs) for drinking water exposures and found to pose unacceptable risk to ecological receptors at Portland Harbor. Because aquatic organisms may be exposed at the point where groundwater enters surface water within the transition zone, the point of compliance (POC) for surface water criteria for the protection of both aquatic life and human health should be located within the TZW. Information in EPA's administrative record for the ROD fully supports application of the surface water HHC criteria to TZW. EPA's responses to comments on the Proposed Plan explain:

> The human health and ecological risk assessments and feasibility study found that releases of hazardous substances found in surface water and groundwater within the Site pose unacceptable risks to humans from ingestion and bioaccumulation through the consumption of fish and shellfish; and to ecological receptors for direct contact, ingestion, and bioaccumulation through

the consumption of prey. Therefore, having been triggered into action, development of RAOs and cleanup levels to achieve those RAOs for both media is appropriate at the Site.

Record of Decision, Portland Harbor Superfund Site (January 2017), Responsiveness Summary, Appendix A at 2-23. The responses also state that "there is no basis to distinguish pore water from groundwater or surface water in regard to where compliance with the ARAR should be met." *Id.* at 2-25.

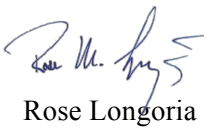
Given the information and EPA opinions in the ROD itself, it would be a potential violation of CERCLA and the Administrative Procedure Act to avoid using the HHC as ARARs for the COCs identified within the TZW at Portland Harbor. Site-specific agency findings and conclusions tip sharply in favor of the Yakama Nation's position that surface water quality criteria are undeniably relevant and appropriate for remediation of pore water to protect human health.

Conclusion

All of the factors listed in CERCLA Section 121(d)(2)(B) for applying CWA water quality criteria to the COCs in the Portland Harbor transition zone water are met here. Because the TZW supports aquatic organisms that are part of the surface water ecosystem, criteria protective of surface water uses must be considered relevant and appropriate requirements. Beneficial uses assigned to the lower Willamette River include aquatic life uses and human uses including drinking water and fishing, and criteria necessary to protect those uses include acute and chronic aquatic life criteria and human health criteria based on the consumption of both water and organisms.

Please contact me at (509) 865-5121 ext. 6365 if you want to discuss this issue further.

Sincerely,



Rose Longoria
Superfund Section Manager
Yakama Nation Fisheries

cc: Dean Ingemansen
Lori Cora
Stephanie Ebright
Davis Zhen
Sean Sheldrake